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WHAT IS CLAIMED IS

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1. An inductance device driving system which supplies a predetermined electric current to an inductance device by changing a pulse width of a voltage applied to said inductance device according 10 to a current instruction value, said system comprising;

a current detection section which detects the electric current which flows through said inductance device;

15 a comparison section which compares a detection current value detected by said current detection section with said current instruction value;

20 a current control section which turns on/off the voltage applied to said inductance according to a comparison result of said comparison section; and

25 an off time control section which controls an off time for which application of the voltage to said inductance device is interrupted, according to the current instruction value.

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2. The inductance device driving system as claimed in claim 1, wherein said off time control section sets the off time such that, as the current instruction value is smaller, the off time becomes 35 longer.

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3. The inductance device driving system  
as claimed in claim 1, wherein said off time control  
section sets the off time such that, as the current  
instruction value is larger, the off time becomes  
5 shorter.

10 4. The inductance device driving system  
as claimed in claim 1, wherein said off time control  
section performs bit shift of the current  
instruction value so as to determine the off time  
according to a value obtained from thus performed  
15 bit shift of the current instruction value.

20 5. The inductance device driving system  
as claimed in claim 1, further comprising an off  
time information in which the off time with respect  
to the current instruction value is stored, and  
wherein:

25 said off time control section determines  
the off time by referring to said off time  
information according to the current instruction  
value.

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6. The inductance device driving system  
as claimed in claim 1, wherein said off time control  
35 section comprises:

a counter counting clock pulses according  
to a count value set according to the current

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instruction value; and

a voltage application control section  
controlling application of the voltage to said  
inductance device according to a count-up output of  
5 said counter.

10           7. The inductance device driving system  
as claimed in claim 6, wherein said off time control  
section detects a timing at which the detection  
current value exceeds the current instruction value,  
and starts counting of said counter at the thus-  
15 detected timing.

20           8. The inductance device driving system  
as claimed in claim 6, wherein said voltage  
application control section comprises:

25           a switch section controlling application  
of the voltage to said inductance device from a  
power source; and

               a flywheel diode causing an electric  
current generated in said inductance device when  
said switch section turns from an on state into an  
off state, to flow into said power source.

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               9. An information storage apparatus which  
35 applies a magnetic field according to an electric  
current based on a current instruction value to a  
recording medium and performs at least one of

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recording/reproducing/erasing of information to/from said recording medium, comprising;

5 a magnetic field application section which applies the magnetic field according to the electric current flowing therethrough to the recording medium;

a current detection section which detects the electric current which flows through said magnetic field application section;

10 a comparison section which compares a detection current value detected by said current detection section with said current instruction value;

15 a current control section which turns on/off the voltage applied to said magnetic field application section according to a comparison result of said comparison section; and

20 an off time control section which controls an off time for which application of the voltage to said magnetic field application section is interrupted, according to the current instruction value.

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10. The information storage apparatus as claimed in claim 9, wherein said off time control section sets the off time such that, as the current 30 instruction value is smaller, the off time becomes longer.

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11. The information storage apparatus as claimed in claim 9, wherein said off time control

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section sets the off time such that, as the current instruction value is larger, the off time becomes shorter.

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12. The information storage apparatus as claimed in claim 9, wherein said off time control section performs bit shift of the current instruction value so as to determine the off time according to a value obtained from thus-performed bit shift of the current instruction value.

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13. The information storage apparatus as claimed in claim 9, further comprising an off time information in which the off time with respect to the current instruction value is stored, and wherein:

. . . . . said off time control section determines the off time by referring to said off time information according to the current instruction value.

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14. The information storage apparatus as claimed in claim 9, wherein said off time control section comprises:

a counter counting clock pulses according to a count value set according to the current instruction value; and  
a voltage application control section

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controlling application of the voltage to said magnetic field application section according to a count-up output of said counter.

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15. The information storage apparatus as claimed in claim 14, wherein said off time control  
10 section detects a timing at which the detection current value exceeds the current instruction value, and starts counting of said counter at the thus-detected timing.

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16. The information storage apparatus as claimed in claim 14, wherein said voltage  
20 application control section comprises:

a switch section controlling application of the voltage to said magnetic field application section from a power source; and  
a flywheel diode causing the electric  
25 current generated in said magnetic field application section when said switch section turns from an on state into an off state, to flow into said power source.

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17. An inductance device driving method by which a predetermined electric current is  
35 supplied to an inductance device by changing a pulse width of a voltage applied to said inductance device according to a current instruction value, comprising

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the steps of;

a) detecting the electric current which flows through said inductance device;

b) comparing a detection current value

5 detected in said step a) with said current instruction value;

c) turning on/off the voltage applied to said inductance device according to a comparison result in said step b); and

10 d) controlling an off time for which application of the voltage to said inductance device is interrupted, according to the current instruction value.

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18. The method as claimed in claim 17, wherein, in said step d), the off time is set such 20 that, as the current instruction value is smaller, the off time becomes longer.

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19. The method as claimed in claim 17, wherein, in said step d), the off time is set such that, as the current instruction value is larger, the off time becomes shorter.

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20. The method as claimed in claim 17, 35 wherein, in said step d), bit shift of the current instruction value is performed so that the off time is determined according to a value obtained from

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thus-performed bit shift of the current instruction value.